

CLAIMS

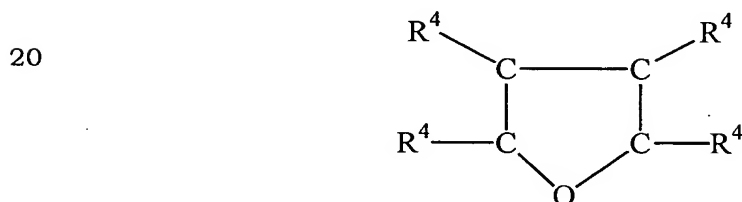
What is claimed is:

1. A urea/urethane polymer comprising (a) repeating units derived from a hydroxy-terminated  
 5 copolymer prepared from tetrahydrofuran and one or both of an alkylene oxide and a cyclic acetal, and (b) repeating units derived from a polyisocyanate;

wherein the urea/urethane polymer contains less than about 2 mole percent of urea units described  
 10 by the formula  $-R - N(R^2) - C(O) - N(R^2) - R^1 -$ ;

wherein R is an aromatic hydrocarbon radical,  $R^1$  is an aliphatic hydrocarbon radical, and  $R^2$  is H or an amide group that is described by the formula  $-C(O) - N(R^2) - R -$ ; and

15 wherein the tetrahydrofuran is described by the formula



25 in which any one of the  $R^4$ 's may be a  $C_1$  to  $C_4$  alkyl radical with the remaining  $R^4$ 's being hydrogen.

2. A urea/urethane polymer according to Claim 1 wherein the polyisocyanate is selected from the group consisting of toluene diisocyanate, methylene  
 30 diphenyldiisocyanate and polymethylene polyphenylisocyanate.

3. A urea/urethane polymer according to Claim 1 wherein the alkylene oxide is selected from the group consisting of 1,2-propylene oxide and ethylene  
 35 oxide.

4. A urea/urethane polymer according to Claim 1 wherein the alkylene oxide is ethylene oxide.

5. A urea/urethane polymer according to Claim 1 wherein each  $R^4$  in the tetrahydrofuran is hydrogen.

6. A urea/urethane polymer according to Claim 1 wherein each  $R^4$  in the tetrahydrofuran is hydrogen, the hydroxy-terminated copolymer is prepared from an alkylene oxide, and the alkylene oxide is ethylene oxide.

7. A urea/urethane polymer according to Claim 1 wherein the urea/urethane polymer contains less than about 1 mole percent of the described urea units.

8. A urea/urethane polymer according to Claim 1 wherein the urethane polymer further comprises repeating units derived from an ionic compound or a potentially ionic compound.

9. An aqueous dispersion of a urea/urethane polymer wherein the urea/urethane polymer comprises a polymer according to Claim 1 and a surfactant.

10. An ionomeric urea/urethane polymer comprising (a) repeating units derived from an aliphatic polyether polyol having a molecular weight of about 700 to about 1500, and (b) repeating units derived from a polyisocyanate,

wherein the urea/urethane polymer contains less than about 2 mole percent of urea units described by the formula  $-R - N(R^2) - C(O) - N(R^2) - R^1 -$ ;

wherein R is an aromatic  $C_6 - C_{20}$  hydrocarbon radical,  $R^1$  is an aliphatic  $C_1 - C_{20}$  hydrocarbon radical, and  $R^2$  is H or an amide group that is described by the formula  $-C(O) - N(R^2) - R -$ .

11. A urea/urethane polymer according to Claim 10 which comprises repeating units derived from an ionic compound or a potentially ionic compound.

12. A urea/urethane polymer according to Claim 11 wherein the ionic compound or potentially ionic compound comprises a hydroxy-carboxylic acid of the general formula  $(HO)_x R^7 (COOH)_y$ , wherein  $R^7$  represents a straight or branched hydrocarbon radical

containing 1 to 12 carbon atoms; and x and y each independently represents values from 1 to 3.

13. A urea/urethane polymer according to Claim 11 wherein the ionic compound or potentially  
5 ionic compound comprises 2,2' dimethanolpropionic acid.

14. A urea/urethane polymer according to Claim 10 wherein the polyisocyanate is selected from the group consisting of toluene diisocyanate, methylene diphenyldiisocyanate and polymethylene  
10 polyphenylisocyanate.

15. A urea/urethane polymer according to Claim 10 wherein the polyether polyol is described by the formula  $\text{HO} - [(\text{CR}^5\text{H})_m - \text{O} -]_n - \text{H}$ , wherein  $\text{R}^5$  is hydrogen, a halogen or a  $\text{C}_1$  to  $\text{C}_4$  alkyl radical; m is  
15 3 or 4; and n is in the range of about 8 to about 20.

16. A urea/urethane polymer according to Claim 15 wherein  $\text{R}^5$  is hydrogen.

17. A urea/urethane polymer according to Claim 10 wherein the polyether polyol has a molecular  
20 weight in the range of about 900 to about 1150.

18. A urea/urethane polymer according to Claim 10 wherein the urea/urethane polymer contains less than about 1 mole percent of the described urea units.

25 19. An aqueous dispersion of a urea/urethane polymer wherein the urea/urethane polymer comprises a polymer according to Claim 10 and a surfactant.